PRINTER DRIVER WITH AUTOMATIC INQUIRY OF USER PREFERENCES

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Field of the Invention

This invention relates to a peripheral user interface, and specifically to a user interface which negates the need for a user to launch a driver in order to make control changes in the peripheral.

Background of the Invention

It is often difficult for users to set-up peripherals, and particularly peripherals, such as printers in an office network environment, to perform the jobs that the user wants to perform if the user is limited to using current, prior art "print driver" set-up method. The prior art requires the user to actively find and open the driver to control the advanced functions of the device. The problem with peripheral devices and the drivers therefor applies to print, fax, scan and multi-function peripheral (MFP) devices. For example, a user typically has only to click an icon on a task bar of an application, such as a Windows™ application. which causes peripheral to proceed using preset, default parameters, without ever bringing up a driver user interface (UI). Alternatively, a user may select an option from within the "File" menu. At this point, the application presents a dialog box, which usually contains a "Properties" button that will bring up the driver UI. Only at this point may the user specify how the user would like the job to be performed by the peripheral device. Because of the difficulty of this approach, few users are able to take advantage of the capabilities of powerful modern office peripherals, or, may do so only with considerable effort.

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In addition, considering the increased capabilities of modern office peripherals, a user may want and need to change settings often. For example, the user may want to print double sided documents and needs to be able easily to turn the duplex function on and off. Likewise, the user may need to turn a staple function on and off. Prior art devices force the user to go through the process of modifying the print driver as described above, which is inefficient and time consuming. Because of the complexity of modifying a print driver, the process is also error prone. Perhaps the most irritating aspect of modifying a printer driver is that the modification generally "sticks" - becoming a default setting, so that if the user has printed a document in duplex, landscape and stapled, the next document will also print in duplex, landscape and be stapled, unless the user remembers to reset the printer driver to more conventional settings, such a s simplex, portrait, no staple.

The prior art is illustrated in Figs. 1-3. In Fig. 1, an application window is shown at 10. The first step of a print process requires the user to Click "File" 12, then select "Print" 14. It should be noted that, in many Windows™ applications, if the user clicks "Print" icon 16, the job is immediately sent to a printer, with no opportunity for the user to select any options. An application print UI, or "Print Menu" appears, as shown in Fig. 2 at 18. Note that this menu contains a "Properties" button 20. Clicking on "Properties" button 20 produces a printer driver UI, or "Properties Menu" 22 of Fig. 3, which provides access to five additional menus (Finishing, Effects, Paper, Destination, and Basics), each containing a variety of print options, such as "Duplex" 24, "Print Quality" 26, "Collate" 28, *etc*. The user must search through five menus, setting specific parameters, from each of the menus. Once the "Properties are set, the user must select "OK" on each of the five "Properties" menus, and then select "OK" on the "Print" menu.

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U.S. Patent No. 4,991,114 to Kawamura *et al.*, for *Printer comprising display means for displaying operation state thereof*, granted February 5, 1991, describes a user interface which only provides for status display.

U.S. Patent No. 5,555,077 to Schooley, for *Printer having an active user interface feature*, granted September 10, 1996, describes a user interface which is specific to a device rather than relating to the printer driver.

U.S. Patent No. 5,706,411 to McCormick *et al.*, for *Printer status user interface and methods relating thereto*, granted January 6, 1998, only provides for status display and does not provide a user interface for setting of user preferences.

Summary of the Invention

A user interface for controlling peripheral devices including a peripheral option display for presenting peripheral options to a user immediately following selection of the peripheral device.

An object of the invention is to provide a user interface which allows a user to select peripheral functions with a minimal number of actions.

Another object of the invention is to provide a user interface wherein a user is provided an option menu without directly accessing a driver.

This summary and objectives of the invention are provided to enable quick comprehension of the nature of the invention. A more thorough understanding of the invention may be obtained by reference to the following detailed description of the preferred embodiment of the invention in connection with the drawings.

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Brief Description of the Drawings

Fig. 1 is a prior art pull down File menu for MSWord 97®

Fig. 2 is a prior art pull down Print menu for MSWord 97®

Fig. 3 is a prior art pull down Printer Properties menu for MSWord 97®

Fig. 4 is a print selection screen of the invention.

Fig. 5 is a print options screen of the invention.

Detailed Description of the Preferred Embodiment

This invention solves the problems associated with prior art peripheral user interfaces (UI) by automatically placing a dialog box on the display after the user invokes an operation involving a peripheral device. While the invention may be used with printers, facsimiles, scanners or multi-function peripheral (MFP) devices, the examples herein will focus on the use of the invention with a peripheral printing device. The dialog box then presents print options to the user allowing the user to take advantage of the capabilities of the printer. For example, when the user clicks, or selects, the application print icon, a simple dialog appears offering choices such as number of copies, two-sided book style, two sided presentation style, staple and advanced features. The user then clicks one or two buttons to select the options.

The invention differs from the prior art in that prior art drivers, supplied by a peripheral vendor, *i.e.*, a printer driver, does not automatically place a dialog box on the screen when the user clicks on a "Print" icon on the command bar or when the user selects "File" "Print" "OK." The preceding sequence merely prints a job in accordance to the default or last selected parameters, which may not even be appropriate for the current print job, *i.e.*, duplex on v. off; staple selected or not. The printing process is changed by the invention in that a software

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component supplied by a vendor of the peripheral device, when the device is selected, *referred to herein as a peripheral option display,* automatically places a dialog box on the screen, which dialog box offers a set of options for the peripheral device to the user. The software component may take the form of a modified peripheral driver, but may also be a modified Windows™ component, supplied by the vendor of the peripheral device, which functions similarly to a print drive.

Referring now to Figs. 4 and 5, an application window is shown generally at 30. Window 30 includes a print icon 32. A dialog box, or peripheral option display, 34 appears on the user's display immediately after icon 32 is selected and the application passes control of the printing operation to the driver. Dialog box 34 allows selection of user preferences to be made following the selection of a print command. As previously noted, prior art systems do not offer options to the user, and use only default settings when the user clicks the print icon on the task bar, or use the "File" "Print" "OK" sequence. The invention provides a fundamentally different printing process, especially in a Windows™ environment.

Dialog box 34 is a UI which is supplied by the print driver, or windows component replacement. Normally, the driver executes the print process using the current default settings, and does not present a dialog box to the user enumerating available choices. Because dialog box 34 is part of the print driver, it may pass instructions to the peripheral in the same way that would be done if the user selected the "File" "Print" "Properties" sequence, and then selected the parameters.

Dialog box 34 may be provided by an OEM, or may be customizable from within an existing printer driver, in the form of an add-on software component. For example, an existing print driver may offer a protocol for a user to set-up a predefined print format, *i.e.,*

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duplex presentation in which two sided, landscape, tablet and staple are selected. Such a predefined print format may then be displayed as the names on the pop-up dialog buttons. This capability may be extended to allow a MIS department to determine, at the time when the MIS department establishes a customer account for the user, the set of buttons that appear for each user. In this way, advanced functionality may be delivered to a novice user. For example, a user may set up default, predefined print formats, and install such formats at the same time that the peripheral is installed on the user's PC. The user may also set up default, predefined print formats on a server, such as a Window® NT server. When the device is installed to the user's PC from the server, the default, predefined print formats are also installed and made available to the user.

The dialog would also typically contain an advanced settings button that would bring up the drivers full UI. The dialog typically will have a box that could be checked such as "Do not display this dialog again" 36 that would allow the user to de-select, or turn off box 34 if they do not wish to use it. If the dialog box is de-selected, clicking on "Print" icon 32 will result in the job being sent to the last selected printer with the last selected option set. It should be appreciated that, as used herein, and when dialog box 34 is not de-selected, "displaying peripheral options" means that the options, or menu, is displayed immediately - there is no need for the user to track through a long string of menu boxes to reach the "properties" box, and make the appropriate settings.

Thus, a system for providing an automatic inquiry of user preferences has been disclosed. It will be appreciated that further variations and modifications thereof may be made within the scope of the invention as defined in the appended claims.

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